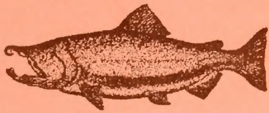
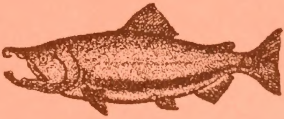
BLM-AK-PT-88-019-6610-070

Norton Sound Aquatic Habitat Management Plan





June 17, 1988
U.S. Department of the Interior
Bureau of Land Management
Kobuk District, Alaska

Dear Reader:

The Kobuk District of the BLM has prepared an aquatic Habitat Management Plan, or HMP. This plan covers portions of the Seward Peninsula and that portion of the Nulato Hills with streams emptying into Norton Sound and located north of the Unalakleet River. A HMP is a written and approved wildlife activity plan for a geographical area of public lands which identifies wildlife habitat management actions to be implemented in achieving specific objectives related to BLM land use plan decisions. The plan does not replace any BLM land use plan now in force and is consistent with all current plans, policy, regulations and laws.

It is BLM policy that:

1. All HMPs be prepared in consultation and coordination with state agencies.

2. HMPs be covered under Sikes Act authority where possible.

3. Funding priority for habitat development work be given to those HMPs implemented under Sikes Act authority.

4. Sikes Act implementation will be assigned a high priority for allocation of wildlife program funds.

One of the major objectives of the Sikes Act (Title II, Public Law 93-452, October 18, 1974), as interpreted and administered by the BLM, is developing comprehensive plans in cooperation with state agencies to develop, maintain and coordinate programs for the conservation and rehabilitation of wildlife, fish and game. An HMP covered under Sikes Act authority is cooperatively agreed upon and signed off on by the BLM District Manager and by appropriate managers in the state wildlife agency. Sikes Act HMPs will identify the priority species and habitats to be managed and will identify the specific projects to be implemented. The Sikes Act HMPs will identify what the BLM and state will jointly or separately agree to do within the area covered by the plan. The Sikes Act establishes formal coordination and cooperation with the state and ensures that state population goals and BLM habitat goals are coordinated.

CONCURRENCE AND APPROVAL

This Habitat Management Plan as written meets with our concurrence and approval.

Roger Bolstad

Roger A. Bolstad
Kobuk District Manager
Bureau of Land Management

6/2/88
Date

John H. Clark
Regional Supervisor
Sport Fish Division
Alaska Department of Fish and Game

5-16-88
Date

Tom Kron

Tom Kron
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Fisheries Rehabilitation and Enhancement Division
Alaska Department of Fish and Game

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5-16-88
Date

Richard C. Randall

Richard C. Randall
Regional Supervisor
Commercial Fisheries Division
Alaska Department of Fish and Game

5-13-88
Date

Form 6780-1
(July 1981)
(formerly 6620-1)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CHECKLIST FOR PREPARATION AND REVIEW OF HABITAT MANAGEMENT PLANS

State Alaska

District Kobuk

Resource Area

HMP Name and Number Norton Sound Aquatic AK-PT-88-019-6620-070

HMP Prepared by Joe Webb

REVIEW CHECKLIST	SURNAME	DATE
1. Master Memorandum of Understanding, Sikes Act Agreement and/or Supplemental with State Agency.	▨	08-03-83
2. Preliminary meeting(s) with State Agency *(or other appropriate cooperators)* to jointly discuss HMP objectives.	▨	7-14-87-Webb & Lean 9-23-87-Webb & Ott 9-23-87-Webb & Kramer 11-16-87-Webb, Randall & Lean 12-29-87 Webb & Arvey
3. Endangered Species Act Compliance completed by S. Robinson	S Robinson	6-2-88
4. Review by District/Resource Area Specialists		
Range L. Field	L. Field	5/24/88
~~Wild Horse and Burro~~		
Hydrologist L. Knapman	L Knapman	6/02/88
Forestry L. Field	L. Field	5/24/88
Fisheries/Botanist/Wildlife Biologist S. Robinson	S Robinson	6-2-88
Lands B. Bush	Boyce Bush	6/2/88
Minerals J. Deininger		6-2-88
Recreation L. Field	L. Field	5/24/88
~~Wilderness/ACEC~~		
Cultural H. Smith	H. Smith	5/23/88
~~[illegible]~~		
Environmental Coordinator *(reviews EAs)* L. Knapman	L Knapman	6/02/88
Support *(Chief of Operations/Fire Management)*		
Others		
5. ~~Reviewed by Area Manager~~		
6. ~~Reviewed by Chief of Resource Management~~		
7. Draft HMP and EA reviewed by State Agency authorized officer *or other cooperators).*		
8. ~~Final review *(if appropriate)* by State Director~~		
9. Reviewed and approved by District Manager		6/2/88
10. Approved by State Agency authorized officer		

Remarks

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NORTON SOUND AQUATIC HABITAT MANAGEMENT PLAN

U.S. Department of the Interior
Bureau of Land Management, Alaska

Prepared by

Joseph F. Webb
Fisheries Biologist

Approved by

Roger A. Bolstad
Kobuk District Manager

June 17, 1988

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LIST OF ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
ADF&G	Alaska Department of Fish and Game
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CMP	Coastal Management Plan
HMP	Habitat Management Plan
MFP	Management Framework Plan
NPS	National Park Service
RMP	Resource Management Plan

NORTON SOUND AQUATIC HABITAT MANAGEMENT PLAN

Introduction

The "Norton Sound Aquatic Habitat Management Plan" (HMP) is a joint federal-state plan for managing aquatic and riparian environments on Bureau of Land Management Kobuk District lands in watersheds that are tributary to Norton Sound (Bering Sea). Figure 1 is a map showing the location of the HMP area. This HMP is developed under authority of the Sikes Act, Public Law 93-452 and the "Master Memorandum of Understanding" between the BLM and the Alaska Department of Fish and Game (AK-950-MU3-11, August 3, 1983).

This plan was prepared because of the following concerns:

(1) the extremely large amount of crucial anadromous fish habitat on BLM-managed lands in the area,

(2) the important contribution of fisheries to local economies,

(3) the increasing demand in Alaska for high quality sport fishing opportunities,

(4) the potential for increasing salmon production on public lands to meet increasing demands of local, state, national, and international fisheries,

(5) the need to mitigate the impacts of development of other resources on anadromous fish habitat.

The priority species in the HMP area include all five species of Pacific salmon (chinook, chum, sockeye, coho, and pink) and Dolly Varden. Their crucial habitats are herein designated priority habitats. Crucial habitat is defined as that habitat which is absolutely basic to maintaining viable populations (BLM Manual 6780.05) and includes spawning, rearing, overwintering and migratory habitats. These habitats warrant increased management emphasis and protection. Although priority species will be the major focus of the projects included in this plan, non-priority species such as grayling and arctic char may be considered for projects.

Design and Scope of the HMP

The HMP is a plan that provides general guidelines for the management of the fishery program on BLM lands within the Norton Sound area. The plan is general in comparison to other BLM habitat management plans developed for smaller areas such as one small stream or watershed.

This HMP covers 4.5 million acres of BLM land within a general area of approximately nine million acres. The HMP is also general in respect to the amount of detail given to BLM's overall management and administration of public lands in such matters as mining laws and public land laws, the Alaska Statehood Act, the Alaska Native Claims Settlement Act, the Alaska National Interest Lands Conservation Act and other applicable laws. A listing of pertinent laws, regulations and policy memoranda is given in a following section under management constraints. This plan does not replace any BLM land use plan now in force. A brief discussion of area land use plans occurs in a following section. It is a purpose of this plan to interface with the Bureau's national anadromous fish habitat management plan, a purpose of which is to increase anadromous fish numbers on public lands by 20%. The national BLM anadromous fish plan (Veterick et al 1988) outlines a program of inventory, habitat improvement, monitoring, research and cooperative management plans to achieve this purpose.

Due to the general nature of this plan, the environmental assessment and economic analysis required of BLM activity plans will be general and will assess the effects of implementing types of projects rather than specific projects. Specific projects will be developed separately and will be attached as HMP supplements. Separate environmental and economic analyses will be performed on each project as needed.

Fishery Description

The Seward Peninsula and Norton Sound fisheries are very important to the cash and subsistence economies of the region and to a growing sport fishery. Many of the streams that are important as spawning and rearing habitat for these valuable commercial and sport fisheries occur on BLM lands. Table 1 lists many of these streams and summarizes pertinent information. Habitat for all five species of Pacific salmon as well as char, cisco, grayling, pike, burbot and whitefish occur there. Table 2 lists the species of freshwater fish known to occur in the area.

Although Table 1 shows the major streams in the area and the length of the main stem, it does not show the total value of these streams as habitat for important anadromous species. For example, Fish River (with a length of 70 miles) has only half of its mainstem on BLM lands, yet that 35 or 40 miles receives over 200 miles of tributaries that are important as spawning and rearing habitat for anadromous species.

For the most part, relatively little is known concerning the fish populations of the area. Many large streams have never been inventoried for fishery values. Cursory surveys have been conducted by BLM on some of the area streams since 1978. Reports on these stream inventories are listed in the bibliography. The Sport Fish Division of Alaska Department of Fish and Game (ADF&G) inventoried areas in the Imuruk Basin and lower Kuzitrin and Agiapuk Rivers in 1970 and 1971, and observed sport fishing activity on some of the area rivers in 1977 and 1978 during the general time period they were engaged in more intensive studies on the Nome River and Niukluk River (a tributary of Fish River). Lakes in the area are generally unsurveyed except for Salmon Lake by ADF&G which did annual escapement counts for sockeye salmon, and Glacial Lake which was surveyed by BLM in 1977 and 1978. BLM inventoried lakes in the Kigluaik Mountains during 1987, as well as some unsurveyed streams in the Kigluaik Mountains and Imuruk basin watersheds. The Commercial Fish Division of ADF&G annually monitors salmon escapement on some of the major streams in the area, but, as Table 1 indicates, less than half of the streams are monitored. Studies of the salmon enhancement potential in the Nome area and in the Pilgrim River drainage have been carried out by the Fisheries Rehabilitation, Enhancement and Development Division of the ADF&G. Woodward-Clyde consultants (1980) studied the effects of stream and riparian area gravel mining on certain Seward Peninsula streams for the U.S. Fish and Wildlife Service.

Ecosystem Description

The general climate of the HMP area is characterized by long, severe winters and cool, wet summers. Annual precipitation averages about 20 inches and usually the heaviest amount occurs as rain in late summer and early fall. Snowfall ranges from 33 to 80 inches with most areas averaging less than 60 inches. Coastal areas are frequently windy. Freeze-up of rivers occurs in October and break-up occurs from late April to late May. Freeze-up of the Bering Sea occurs in late October to December and break-up occurs from May to June.

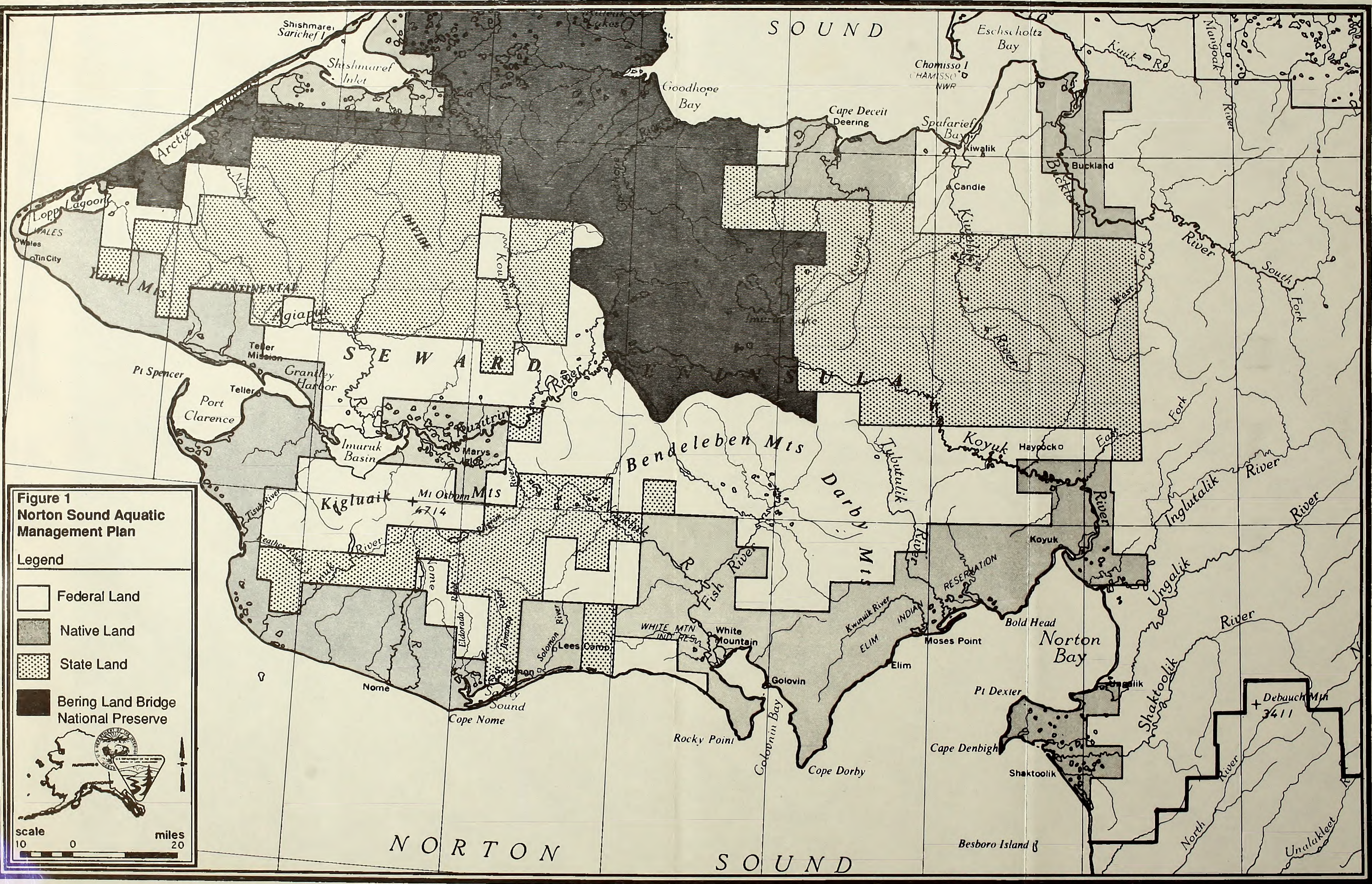

Figure 1
Norton Sound Aquatic Management Plan

Stream	Ocean Trib.	(1) % BLM	Escapement (2) 1985	1984	Length-miles (Approximate)	Inventories Performed	Drainage Area (sq. miles)	Development Activity
Agiapuk River	No	Mi	U (3)	U	55	No	1,118	Placer Mining(6)
Canyon Creek	No	Mo	U	U	30	Yes-BLM	---	None
Cobblestone River	No	Ma	U	U	17	Yes-BLM	81	None
Cripple Creek	Yes	Mi	1,150	(5)	30	No	---	Placer Mining(6)
Fall Creek	No	Ma	U	U	12	Yes-BLM	---	None
Feather River	Yes	Mi	U	U	20	Yes-BLM	---	None
Fish River	Yes	Ma	43,715	398,386	70	Yes-BLM/ADF&G	2,189	Placer Mining
Flambeau/ Eldorado Rivers	Yes	Mo	9,791	1,952,921	50	No	200	Placer Mining(6) Gravel
Inglutalik River	Yes	Ma	29,999	(5)	99	Yes-BLM	1,033	None
Kaugarok River	No	Mi	U	U	45	No	561	Placer Mining
Koyuk River	Yes	Ma	U	U	122	Yes-BLM	1,968	Placer Mining
Kuzitrin River	No	Mi	U	U	85	No	2,600	None(7)
Nome River	Yes	Mi	4,466	181,793	32	Yes-ADF&G	162	Placer Mining(6)
Noxapaga River	No	Mi	U	U	40	No	478	Placer Mining
Pilgrim/Grand Central Rivers	No	Mi	980(4)	475(4)	40	No	---	Placer Mining
Sinuk River	Yes	Mi	10,816	285,092	47	Yes-(upper) BLM		Gravel Mining(6)
Shaktoolik River	Yes	Ma	18,571	(5)	90	Yes-BLM	855	None
Tubutulik River	Yes	Ma	23,057	149,949	60	Yes-BLM	403	None
Ungalik River	Yes	Ma	7,421	(5)	91	No	692	Placer Mining

---

*Listing of Major Streams only

(1) Ma=Major (75% or more)
Mo=Moderate (30-75%)
Mi=Minor (less than 30%)

(3) U=Unknown

(4) Sockeye Salmon Only

(5) Not Readily Available

(6) Past Activity

(7) Not on Mainstem--
Mining on Tributaries

(2) The escapement is for chum, pink, chinook and coho salmon. Percentages of each species vary from stream to stream and from year to year. See ADF&G commercial fishing annual management reports.

Table 2. List of common and scientific names of freshwater fish in the Norton Sound HMP area

Common Name	Scientific Name
Pink salmon	Oncorhynchus gorbuscha
Chinook salmon	Oncorhynchus tshawytscha
Chum salmon	Oncorhynchus keta
Coho salmon	Oncorhynchus kisutch
Sockeye salmon	Oncorhynchus nerka
Dolly Varden	Salvelinus malma
Arctic char	Salvelinus alpinus
Humpback whitefish	Coregonus pidschian
Broad whitefish	Coregonus nasus
Bering cisco	Coregonus laurettae
Least cisco	Coregonus sardinella
Round whitefish	Prosopium cylindraceum
Grayling	Thymallus arcticus
Northern pike	Esox lucius
Slimy sculpin	Cottus cognatus
Ninespine stickleback	Pungitius pungitius
Burbot	Lota lota
Longnose sucker	Catostomus catostomus

The topography of the area is characterized by relatively narrow coastal plains with extensive upland areas to 5,000 feet in elevation. Interspersed between the mountainous areas on the Seward Peninsula are several large marshy areas including the Koyuk River basin, Death Valley in the Tubutulik River basin, McCarthy's Marsh in the Fish River basin, the Kuzitrin River lowlands and the Imuruk Basin. The Nulato Hills on the eastern side of the HMP area divide the Yukon River drainage from the Norton Sound. The north side of the Kuzitrin River basin essentially forms the boundary between the Bering Sea drainage to the south and the Chukchi Sea drainage to the north.

Vegetation communities in coastal regions, the western Seward Peninsula and alpine areas consist of tundra. Taiga communities, primarily white and black spruce, occur in the Nulato Hills and the southeastern Seward Peninsula east of Golovin Bay. Interior lowlands have muskeg/wetland vegetation communities. Riparian vegetation species depend on general location and site-specific microhabitat conditions, but vary from low willow to white spruce forests.

Management Constraints and Relation to Land Use Plans

The following laws, regulations and policy memoranda pertain to and guide management of fish and riparian habitat on BLM-administered lands:

Laws:

- National Environmental Policy Act of 1969
- Federal Land Policy and Management Act of 1976
- Sikes Act of 1960
- Alaska National Interest Land Conservation Act of 1980
- The Alaska Native Claims Settlement Act of 1971
- The Clean Water Act of 1977
- Mining Law of 1872
- Coastal Zone Management Act of 1972

Policy Memoranda:

- Master Memorandum of Understanding between Alaska Department of Fish and Game and Bureau of Land Management (AK-950-MU3-11)
- Alaska Water Quality Standards (18AAC, Chapter 70, Section 20)

Regulations:

- 43 CFR 3809--Surface Management of Public Lands under U.S. Mining Laws
- Alaska Anadromous Fish Act--Title 16
- BLM Riparian Area Management Policy, Instruction Memorandum 87-274
- Executive Order 11988--Floodplain Management
- Executive Order 11990--Wetland Protection

Two BLM land-use plans cover the HMP area: the "Northwest Management Framework Plan" (MFP), and the "Central Yukon Resource Management Plan" (RMP). The Northwest plan, completed in 1982, covers all of the area except for some headwater areas in the Nulato Hills which are covered by the Central Yukon Plan, completed in 1986.

Although the Northwest Plan is somewhat out of date, certain broad objectives are still appropriate. The objectives for aquatic wildlife habitat are to maintain the existing quality of fish habitat and, where appropriate, to provide access to fish harvest areas for subsistence and sport use on public lands. The watershed and recreation programs overlap into fisheries concerns. Watershed objectives include protecting floodplains and maintaining water quality in accordance with Alaska Water Quality Standards. Recreation program objectives focus on providing appropriate recreational developments when justified by existing and potential levels of use. It was also recognized that fishing was one of the major recreational opportunities that exist in the area under study, but that poor access may be limiting this activity.

The southwestern portion of the Nulato Hills subunit of the Central Yukon Planning Area covers the southeast portion of the HMP area. Protecting crucial salmon spawning beds from adverse impacts of development and inventorying and monitoring fish populations and habitat condition in cooperation with the ADF&G are among the management objectives stated in the Central Yukon RMP. Several Areas of Critical Environmental Concern (ACEC) were designated in the plan due to high fisheries values, and three are located in the HMP area. The Shaktoolik, Ungalik, and Inglutalik ACECs were designated to give increased protection to salmon spawning and rearing habitat. Another objective identified in the Central Yukon Plan RMP relative to recreation resource management is to maintain the existing fishing opportunities and to support or encourage improved access into areas that presently have extremely limited access.

The Alaska Department of Natural Resources is developing a land use plan for state lands in the northwestern region, and the HMP area lies within the area encompassed by this plan. The plan is in draft form, and final decisions have not been made. Examination of the draft plan reveals that for the most part it will recommend a "status quo" situation with no significant changes from present state land management policy for most tracts of state land within the HMP area. There should be no conflicts with any provisions of the state's plan with respect to any projects or studies conducted as a result of this plan. The state plan calls for some land disposals along the road system north of Nome. These disposals may result in either increased use or changes in use patterns of certain fish and wildlife resources in rural areas. The only closures to mineral development are for certain areas used by colonial nesting birds along the sea coast. The plan calls for restrictions to mineral development within one mile of the mouth of ocean tributary anadromous fish streams. These two actions will have no effect on BLM management.

The HMP is within the area covered by the Bering Straits Coastal Resource Service Area. The goals, objectives, and actions identified in this HMP are consistent with goals and objectives expressed in the Bering Straits Coastal Management Plan (CMP), Volume 3, 1986. The maintenance of subsistence resources and the protection of anadromous fish and anadromous fish habitat are primary objectives of the Bering Straits CMP. Within the scope of the HMP and the land use plans, cooperative agreements and memoranda of understanding will be the vehicles to facilitate state/federal/private land owner coordination and cooperation.

Land Status and Administration

Lands in the HMP area are managed by federal and state governments and by Alaska Native corporations. Both the BLM and National Park Service (NPS) manage federal lands in the area. BLM lands total approximately 4.5 million acres or approximately 50 percent of the total land area within the HMP boundaries. The NPS manages about 500,000 acres within the Bering Sea drainage (part of the Bering Land Bridge National Preserve). The remainder of the area is either state or Native corporation owned, Native allotments or patented mining claims. Figure 2 is a map showing the land ownership pattern within the area.

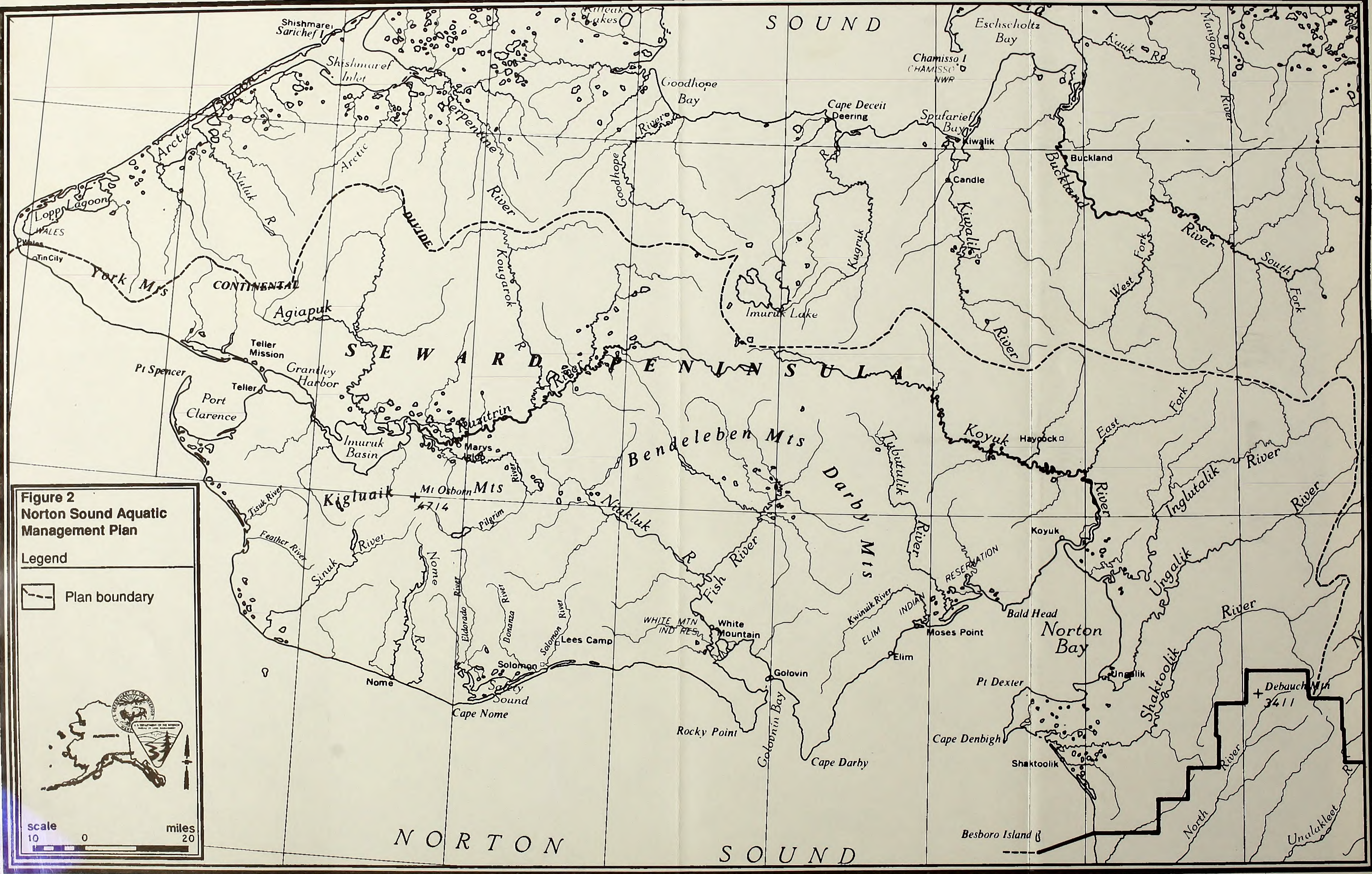

Figure 2
Norton Sound Aquatic Management Plan

Fishery Values

The ADF&G monitors the commercial, sport and subsistence fisheries within the state and also has the responsibility to rehabilitate, enhance and develop those fisheries resources. The economic values and harvests are monitored in addition to the escapement for key index streams. This data is found in annual management reports. Coastal areas of the state are divided into commercial fishing districts and there are two districts within this HMP area. The Port Clarence District includes the waters adjacent to the western peninsula from Cape Prince of Wales south to Cape Douglas. The Norton Sound District covers the area from Cape Douglas south around Norton Sound to just south of Cape Stephens and north of Point Romanof at the Canal Point Light. Five of the six Norton Sound subdistricts are located adjacent to BLM's Kobuk District.

Port Clarence District

Commercial salmon fishing has been prohibited in this area since 1967, with the fishery dedicated to subsistence use primarily and a light sport fishery. The following summary is taken from the ADF&G annual management report of 1985:

> Data collected by ADF&G personnel indicate a majority of the fishermen of Brevig Mission fish the northern and northeastern sections of Port Clarence, while Teller fishermen utilize Grantley Harbor and Tuksuk Channel. Interviews with local residents have also indicated substantial fishing effort within the Agiapuk River. Salmon Lake and Pilgrim River stocks have been utilized primarily by Nome residents. However, the Alaska Board of Fisheries in 1972 adopted a regulation which closed Salmon Lake and its tributaries to subsistence salmon fishing from July 15 through August 31 to conserve declining sockeye salmon stocks. One subsistence permit was issued to a Nome resident in 1985 for Pilgrim River. That permit reported a harvest of nine chum salmon.
>
> Personal interviews of fishermen seem to indicate a decline in the subsistence fishing effort, due primarily to the absence of younger fishermen entering the fishery. A majority of the subsistence fishing effort appears to be conducted by elder residents who gather fish for an entire family.

Surveys conducted from 1963 to 1983, indicated that from 1,200 to 8,900 salmon are caught annually by residents of the Port Clarence District (Wales, Teller, and Brevig Mission villages).

Norton Sound District

Commercial fishing in this district first began in 1961. There has been a gradual increase in the commercial fish harvest over the years as processing facilities have improved. The majority of commercial fishermen are residents of the many Native villages scattered along the coast. Sales of fish are very important source of cash income to an area that features high unemployment for most of the year. Also, very important to the area residents is the subsistence fishery where there has been an increase, unlike in the Port Clarence District. The ten-year average (1975-85) commercial salmon harvest for this district is 378,045 fish. Chum, pink, and coho salmon were the most important anadromous species. The subsistence harvest from this district has varied from 22,000 to 98,000 fish during the period 1973 to 1983, with an increasing trend since 1980. The gross value of the commercial catch to the fishermen varied between $285,283 to $1,038,967 in the ten years preceding 1985. The value in 1985 was $822,056. The total number of fishermen in 1985 was 155. The season usually runs from mid-June to the end of August, not counting any early emergency closures, and the money earned is a significant contribution to the local economy.

The Norton Sound Fishery is a near-shore fishery that harvests fish as they move toward nearby streams to spawn. As mentioned earlier, five of six subdistricts are located adjacent to the Kobuk District, with the sixth district (Unalakleet) in BLM's Anchorage District. Of the 155 fishermen in 1985, 91 fished in the five Kobuk District subdistricts and 70.2% of the total catch came from this area. The commercial fishery got its start in Norton Sound in the Unalakleet area in 1961, so it is not surprising that this area continues to have a strong share of the commercial fishery. Over the eight year period, between 1978 and 1985, subdistrict 6 (Unalakleet) has produced from 28% to 65% of the annual catch by numbers. This wide spread is not surprising since the fishery in Norton Sound is strongly influenced by effort. Golovin Bay (subdistrict 2) has produced from 14% to 42% of the total catch with 10% to 16% of the fishermen, while the Unalakleet district had 29% to 52% of the fishermen. Golovin Bay fishermen usually enjoy a much higher catch rate than subdistrict 6 fishermen, sometimes catching three to four times as many fish.

Relative Importance of BLM Lands to the Fishery

The fish caught by these subsistence and commercial fishermen (often the same people) are bound for the area streams to spawn, and many of these streams lie on BLM lands. A concern shared by many scientists and managers is how much each of the streams within an area contributes to the area's fishery as a whole. The contribution is not known for the Seward Peninsula and Norton Sound area streams in exact terms and may not be determined in the near future due to the complexity of a multi-species fishery and the high costs of acquiring the data. Nevertheless, it is possible to grossly estimate the contribution of groups of streams to the various subdistrict fisheries by looking at where the fishing effort occurs and the proximity of the effort to various known spawning streams. By examination of the various streams and noting their relationship to political boundaries and to known spawning areas, it is possible to estimate in very gross terms the relative contribution of state, Native and federal lands to the Norton Sound fishery. This is possible because the land in the area is generally held in large blocks.

For example, in subdistrict 2, Golovin, most of the fishing effort takes place in Golovin Bay or in the immediate vicinity and selects fish headed primarily for Golovin Bay tributaries to spawn. The Fish River is the major river system supplying habitat for spawning salmon in this subdistrict, although other smaller streams provide spawning habitat. An estimated 85 % of available spawning habitat occurs in the Fish River system. Other shorter coastal streams emptying into Golovin Bay provide the remaining habitat. Most of the quality spawning habitat occurs in the upper Fish River and the Niukluk River. All of the upper Fish River is on BLM-managed land. The Niukluk River is managed by BLM, Natives and the State of Alaska.

In order to calculate a gross percentage of the 1985 commercial fishery produced on BLM land (75%) it was necessary to make the false assumption that the quality of all spawning habitat is equal. In addition, it should be noted that the inventory data currently available has not identified all of the spawning habitat being used by commercial species in the Golovin Bay drainage.

Applying this gross technique produces the following estimates for the 1985 commercial fishery:

Subdistrict 1, BLM land producing 10% of the fish;
Subdistrict 2, BLM land - 75%
Subdistrict 3, BLM land - 30%
Subdistrict 4, BLM land - 95%
Subdistrict 5, BLM land - 90%
Subdistrict 6, BLM land - 80%

The estimate thus derived produces a figure of 126,478 fish, or 70% of the fish caught, being spawned on BLM land. Of this contribution, an estimated 66% were produced in the Kobuk District and 33% in the Anchorage District. The value of BLM land as spawning habitat for the Norton Sound subsistence fisheries is similar.

The value of BLM land as spawning habitat for the Port Clarence sport and subsistence fisheries is unknown. However, since BLM is a smaller land manager in the Imuruk Basin watershed, we assume that production there is not as high as for the Norton Sound District.

Values for the area's sport fisheries are harder to determine than for the commercial fishery. Most of the sport fishing takes place on or near the area's relatively well developed road system. Most of the lands near the roads have been selected by the State of Alaska or the Native corporations. There is no doubt that sport fishing pressure is increasing and that BLM lands are producing many of the fish that are caught. The ADF&G annual survey and questionnaire on sport fishing shows increases in this general region, but it is not possible to assess the BLM contribution. Data from the ADF&G surveys were estimated for the Fish River and the Niukluk River to have a sport harvest of 10,000 fish in 1983. The 1987 Alaska Statewide Sportfish Harvest Report shows 18,107 days fished by 3,381 anglers in 1986 in the Seward Peninsula-Norton Sound area.

According to analysis in BLM's "Anadromous Fish Habitat Management Plan," (Veterick et al, 1988) fishery enhancement projects, when grouped on a nationwide basis, will result in an increase of 2.5 times over the investment costs through benefits to recreational and commercial fishing over 25 years. In addition to direct economic benefits to individuals and local communities, important social, biological and scientific values will be realized. Fishery enhancement projects developed directly or indirectly as a result of this plan will attempt to increase populations of important anadromous species such as chinook, coho, and sockeye salmon thus increasing the opportunity for economic gain. Other projects may serve to mitigate losses that potentially could result from development projects, thus offsetting adverse impacts. Other projects may focus on locating areas appropriate for increasing sport fishing opportunity. Quality guided sport fishing trips complete with guides and first class accommodations cost as much as $2,800 per week (not including airline travel which is an additional cost) in remote areas of Alaska. Increasing opportunities for these guided trips or similar activities will result in increases to local economies.

Goals and Objectives of the HMP

The goals of this HMP are to:

(1) Maintain, protect, expand, rehabilitate, develop and enhance spawning, rearing and overwintering habitats of Pacific salmon and Dolly Varden in order to sustain or increase population numbers of these species.

(2) Develop an information data base adequate for future update of land use plans, for development of plans prepared for special Recreation Management Areas, and to provide appropriate mitigation measures for development projects. These goals will be accomplished through a planned program of specific projects and actions of rehabilitation, enhancement, development, mitigation, inventory, monitoring, reclamation, studies and research projects.

The objectives of this HMP are to:

(1) Compile a list of all anadromous streams and map crucial spawning habitat by 1992.

(2) Identify and develop three anadromous fish habitat rehabilitation, enhancement and development projects by 1993 and monitor for success.

(3) Inventory and monitor condition and trend of man-altered riparian habitat in the planning area on a continuing basis beginning in 1990.

(4) Inventory areas appropriate for increasing sport fishing opportunities for coho and chinook salmon by access enhancement and provide a description of opportunities by 1992. Sport fishing opportunities for non-priority species will also be evaluated.

(5) Determine the contribution of BLM spawning habitat to the Port Clarence/Imuruk Basin subsistence salmon fishery and develop a method for monitoring the productivity of this habitat by 1993.

(6) Monitor the number of fish using and spawning in crucial salmon spawning habitat in selected streams on the Seward Peninsula beginning in 1989.

(7) Determine what habitat rehabilitation, enhancement and development projects are desirable and appropriate for increasing sport fishing opportunities in selected lakes in the Kigluaik Mountains by 1994.

Planned Actions and Projects

The goals and objectives will be accomplished through specific actions, projects and standard operating procedures. These may include the following categories: mitigation, rehabilitation, enhancement and development, inventory, monitoring, reclamation and research. Examples of types of mitigation, rehabilitation and enhancement and development projects include lake and stream habitat improvement, improving existing damaged areas stemming from past project developments, enhancing limited habitat types such as overwintering areas in association with development activities, and extending aquatic habitat through active manipulation of natural areas into areas which have previously not supported fish populations. Inventories include basic population and habitat identification and determination of upper limits of distribution of anadromous species. Fish harvest and angler effort and use inventories will also be performed within the HMP area. Salmon escapement data is needed by both BLM and ADF&G from many of the area streams, consequently increased monitoring of important spawning streams will be accomplished.

Table 3 lists the planned actions from 1988 through 1993 for each of the objectives. These may be modified in the future. The initiation and completion of actions and projects and their direction and emphasis may be subject to budgetary constraints. Also, project changes may occur due to annual evaluations and new data.

Planned actions are supported by data collected in previous inventory and monitoring efforts by ADF&G and BLM and will usually be submitted for funding as projects. Complete project descriptions will relate the project to HMP objectives and will describe techniques, methods and end products. The projects will be attached to this HMP as supplements as they are designed and approved for funding. General monitoring guidelines are found in Appendix I.

Table 3. Objectives and Planned Actions for the Norton Sound Aquatic Habitat Management Plan.

	PLANNED ACTIONS		
The objectives of this HMP are:	1988	1989	1990
(1) Compile a list of all anadromous streams and map crucial spawning habitat by 1992.	1. Inventory Shaktoolik River	2. Inventory Ungalik River	3. Inventory Inglutalik River 4. Transfer anadromous fish data to GIS system.
(2) Complete three anadromous fish habitat enhancement projects by 1993 and monitor for success.	1. Feasibility study on three Fish River tributaries 2. Feasibility study on Pilgrim River	3. Engineering and cost analysis on enhancement projects	4. Enhancement work on rivers 5. Feasibility analysis of Glacial Lake enhancement.
(3) Inventory and monitor condition and trend of man-altered riparian habitat in the planning area on a continuing basis beginning in 1990.			1. Purchase, interpret, and ground truth aerial photography of altered riparian areas.
(4) Inventory areas appropriate for increasing sport fishing opportunity by access enhancement for coho and chinook salmon and provide a list of areas to BLM and ADF&G managers by 1992.	1. Monitor Shaktoolik River coho salmon run	2. Monitor Ungalik River coho salmon run	3. Monitor Ungalik River coho salmon run
(5) Determine the contribution of BLM spawning habitat to the Port Clarence/Imuruk Basin subsistence salmon fishery and develop a method for monitoring the productivity of this habitat by 1993.	1. Monitor Kuzitrin River basin salmon escapement	2. Monitor Kuzitrin River basin salmon escapement.	
(6) Monitor use and/or production of crucial salmon spawning habitat in selected streams mutually agreed upon by BLM and ADF&G on the Seward Peninsula beginning in 1989.	1. Same as Objective 5, Action 1	1. Same as Objective 5, Action 2	
(7) Determine what habitat enhancement opportunities are desirable and appropriate for increasing sport fishing opportunity in selected lakes in the Kigluaik Mountains by 1994.		1. Same as Objective 2, Action 4	
Estimated Cost (including all operations, support and labor)	$115,500	$118,500	$140,500

Table 3 continued

Objective	1991	1992	1993
(1)	5. Inventory Tubutulik River 6. Transfer data to GIS System	7. Continue to transfer and update GIS data base	8. Project complete/objective met
(2)	6. Monitor enhancement work in 7. Glacial Lake enhancement	8. Monitor enhancement	9. Objective met/continue monitoring
(3)	2. Design project to monitor riparian habitat condition	3. Initiate reclamation monitoring project	4. Complete project/monitor sample area
(4)	4. Monitor Tubutulik and Fish rivers coho salmon run	5. Final report of coho and chinook projects and access enhancement recommendations	6. Completed project/objective met
(5)	3. Monitor Kuzitrin River basin salmon escapement	4. Monitor Kuzitrin River basin salmon escapement and select a representative stream for annual monitoring.	5. Monitor one stream
(6)	3. Same as Objective 4, Action 4 4. Same as Objective 5, Action 3	5. Same as Objective 5, Action 4	6. Same as Objective 5, Action 5
(7)	2. Determine status and condition of Kigluaik Mountain lakes arctic char populations and habitat	3. Determine status and condition of Kigluaik Mountain lakes arctic char populations and habitat	4. Design project for future lake fishery enhancement (if desirable)
	$133,500	$115,500	$50,500

The individual project supplements will describe monitoring and evaluation methods and standards and will itemize expected costs. Major actions as listed in Table 3 will be monitored by a simple yes-no check-off system. All evaluation and monitoring will be reported on Habitat Management Plan Progress Reports (form 6780-2). Table 4 is a listing of major projects that are anticipated over the next five years.

Work of a routine nature may not require complete project descriptions or requests for funding. Several actions may be incorporated into one project as in the coho salmon spawning habitat monitoring project (Table 3). For example, this project is composed of four annual segments and shows up as actions 1, 2, 3 and 5 for Objective 1 and Actions 1,2,3,4 and 5 for Objective 4.

Table 4. Projects to be Developed in the Norton Sound Aquatic Habitat Management Plan.

1. Coho salmon spawning habitat identification and use.
2. Salmon spawning and rearing habitat enhancement (chum, pink, coho salmon).
3. Kuzitrin River basin salmon spawning habitat identification and monitoring.
4. Glacial Lake sockeye salmon habitat enhancement.
5. Identification, analysis and monitoring of altered riparian habitat on the Seward Peninsula.
6. Arctic char habitat and population study in lakes of the Kigluaik Mountains.

Coordination

Other BLM Programs

One reindeer grazing allotment management plan has been implemented in the Koyuk area with two others being prepared for the Shaktoolik and the White Mountain areas. At the present levels of reindeer grazing occurring within this region, it is believed that the impacts are minimal to aquatic or riparian habitats.

The peregrine falcon, Falco peregrinus, is known to nest along the Shaktoolik and Ungalik Rivers. Individual projects designed for these rivers will consider any potential impacts to peregrine falcons. Consultation with the U.S. Fish and Wildlife Service may be required to comply with the Endangered Species Act.

Areas of Critical Environmental Concern (ACEC) were designated in the Central Yukon Plan for the watersheds of the upper Inglutalik, Ungalik and Shaktoolik Rivers because the lower rivers (outside the Central Yukon planning area) have high value anadromous fish habitat. The purpose of these designations is to provide a higher level of protection to salmon spawning and rearing habitat than would otherwise exist. Specific ACEC plans have not been written yet but general regulations that apply to all ACECs are applicable here. For example, all people operating mines within the ACECs must submit plans of operation regardless of the size of the mining operation. Presently, there are no mines within any of the ACECs within the HMP area. There is one gold mine on the Ungalik River outside the ACEC boundary as well as several in other parts of the Northwest Planning Area within the HMP area.

The Seward Peninsula is highly mineralized and it is the mining industry that brought about the exploration and development of the interior regions. In fact, the first mine on the Seward Peninsula was a silver mine at Omilak during 1881, in the Darby Mountains, an area under BLM management. In following years, gold was discovered and the development of the Seward Peninsula was in progress. Today, the placer gold mining industry is not as big as in past years, but it still contributes to the area's economy. The area is among the top gold producing regions in the state.

BLM's mining law administration program administers placer mining activities on BLM lands. The social, political and natural environment of the Seward Peninsula has been strongly influenced by placer gold mining since 1900. Because of the potential for modifying aquatic and riparian environments that is inherent in many placer mining techniques, the wildlife and fisheries program provides technical review to the Mining Law Administration Program for mining plans and notices in its attempt to prevent "undue and unnecessary" damage to fish and wildlife resources. In 1987, there were eight active federal mines in the HMP area, with a total surface disturbance of approximately 14 acres, based on measurements taken during fiscal year 1987 field compliance examinations. Of these, only two were located within contiguous blocks of BLM-administered lands. Three were located on state lands, two on state-selected lands, and one within a mineral survey on Native lands.

In addition, there were seven operations on patented claims within the area in 1987, totalling an estimated 20 acres of surface disturbance and five operations on state claims, with a total surface disturbance of 15 acres.

As of May 2, 1988, BLM had received seven submissions for federal mines within the HMP area, with an anticipated surface disturbance of about 14 acres. There are also four operations planned for state claims with an expected disturbance of approximately 17 acres, and five mines on private lands with an expected disturbance of about 62 acres. For 1988, the total surface disturbance due to federal, state, and private mining operations within the HMP area is estimated at 93 acres (as of May 2, 1988). The total number of mining claims within the HMP area is 3,017.

Over the past three years, federal mines have been located within the Kougarok, Kuzitrin, Niukluk, Nome, Noxapaga and Ungalik River drainages. The largest amount of surface disturbance from federal mines occurs in the Kuzitrin drainage, where about five acres of surface per year was disturbed.

The HMP will facilitate future recreation program planning by integrating recreation opportunity and needs assessments with fisheries inventories. It is recognized that the numerous lakes and streams in the area have some outstanding recreational opportunities, primarily for fishing and boating. However, the area, as a whole, does not receive high levels of use due to the high costs associated with gaining access, the lack of developed facilities, and the overall absence of information about the area. Due to the wilderness characteristics of the area, along with its rich history relative to Native cultures and mining, an increasing number of out-of-state visitors are choosing this area as a destination. Due to this fact, a number of guides and outfitters conduct their operations within this region in order to accommodate that demand. One such operation is conducted out of the village of White Mountain, located on the Fish River. It provides lodging, fishing guides, and outpost camps for these visitors. It is reasonable to assume that additional operations of this type will be established in the future, and that additional pressures will be placed upon the resources for which BLM has management responsibility.

Riparian habitat quality is a major concern of BLM's soil, water and air program. Consequently, riparian actions identified in this HMP will be coordinated thoroughly with district and state office personnel engaged in those programs.

Intergovernmental Coordination

Certain kinds of action suggested in this plan (i.e., stream habitat enhancement or mitigation projects) may require a high level of intergovernmental coordination. Permits may be required from the Alaska Department of Fish and Game (Anadromous Fish, AAC16) and the U.S. Corps of Engineers (Public Law 92-500, Section 404, Federal Water Pollution Control Act). Also, a coastal zone consistency review of the project by the Bering Straits Coastal Resource Service Area may be required. Any project requiring multi-agency review will be submitted to the State of Alaska, Division of Governmental Coordination.

Alaska Department of Fish and Game Programs

The Commercial Fish Division monitors salmon escapement on many of the rivers in the area. Monitoring occurs primarily for pink, chum, chinook and sockeye salmon on streams that are on state, Native and federal lands. They also monitor commercial and subsistence harvest in coastal areas.

The Sport Fish Division has an intermittent inventory and monitoring program targeted for sport fish and sport fishermen in the areas accessible by the road system on the Seward Peninsula. They also conduct a statewide angler survey on an annual basis with data available for effort and harvest in smaller geographic regions, such as the Seward Peninsula area.

The Fisheries Rehabilitation, Enhancement and Development Division conducts site surveys for fisheries enhancement projects and operates numerous hatcheries and enhancement projects throughout the state. The division also conducts studies to determine the rearing capacity of streams and lakes as well as improving lake productivity through fertilization.

The Habitat Division administers provisions of the state's anadromous fish protection law (AS 16.05.870) which requires a permit from the ADF&G before undertaking a project to obstruct, pollute, use, or change the natural flow of an anadromous fish stream or lake or use a vehicle or excavating equipment in the bed of said stream or lake.

APPENDIX I: MONITORING

Monitoring of HMP objectives and success of implemented project work will provide the basis for evaluation of achievement and help provide necessary data for project redirection if appropriate. Monitoring will also provide information to track trends in resource conditions which will allow for decision points to be identified.

All monitoring efforts, whether they are directed at project success or resource condition and trend, will at a minimum incorporate the following:

1. Clear definition of elements to be monitored and underlying reasons for monitoring.
2. Establish procedures to evaluate monitoring methodology for appropriateness.
3. Identify clearly any resource or project condition or trend being monitored and establish milestones that will trigger further action. A milestone reached could indicate the goals and objectives have been met and monitoring could be terminated or relaxed, or more intensive resource management would be necessary to achieve goals and objectives.
4. All monitoring efforts will contain provisions for data storage and analysis. Statistical methods will be part of the analysis provisions.
5. Minimum and optimum levels of data needed to evaluate the effort will be identified.

APPENDIX II
HABITAT MANAGEMENT PLAN
SUPPLEMENTAL PROJECT OUTLINE FORMAT

I. Introduction and Justification

II. Project Area Description

III. Objectives

IV. Methods

V. Evaluation and Monitoring

VI. Coordination

VII. Implementation Schedule and Budget

VIII. Environmental Assessment (if necessary)

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